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ABSTRACT

This report focuses on utilization of instructional space at Central Oregon Community College during fall 1974. Utilization as herein defined is restricted in scope and applies only to regularly scheduled classes which meet during the hours listed in the registrar's schedule of class-hour meetings. This study assesses the degree to which available instructional space accommodates the various instructional programs and their corresponding student loads. An equally valuable outcome of this study rests on its value in estimating future space requirements. Four basic types of rooms are identified: general classrooms, seminar rooms, teaching laboratories, and teaching auditoriums. Relevant considerations include the building in which the room is located, the number of square feet, and the number of student stations. The utilization of instructional space is analyzed according to the following variables: days of the week, hours of the day, building, size of room, class size in relation to room capacity. This report recommends that lectures normally be scheduled in general purpose classrooms, thus freeing laboratories for additional laboratory-oriented classes. Also discussed are courses not requiring the assignment of regular instruction instructional space, and the use of off-campus facilities. Data are organized into 10 tables. (Author/NHM)

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UTILIZATION OF INSTRUCTIONAL SPACE
AT CENTRAL OREGON COMMUNITY COLLEGE

FALL TERM, 1974

Prepared by: Robert N. Willis

CENTRAL OREGON COMMUNITY COLLEGE
Bend, Oregon 97701
March 12, 1975

JC 760 059

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FOREWORD

This report focuses on utilization of instructional space at Central Oregon Community College during the Fall Term of 1974. Utilization as herein defined is restricted in scope and applies only to regularly scheduled classes which meet during the prescribed hours. Informal usage, such as ad hoc group assemblies or "open lab," is not reflected when the hours fall outside normal course requirements as listed in the Registrar's schedule of class-hour meetings. In brief, the purpose of this study is to assess the degree to which available instructional space accommodates the various instructional programs and their corresponding student loads. In a broader sense, an equally valuable outcome of the study rests on its value in estimating future space requirements, a matter touched on at some length in Part V.

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Central Oregon Community College
March 12, 1975

PART I

INSTRUCTIONAL SPACE DESCRIBED

Four basic types of rooms are included in this category: (1) general classrooms, (2) seminar rooms, (3) teaching laboratories, and (4) teaching auditoriums. Most college instruction takes place within one or the other of these settings, in varying combinations, though additional facilities may also be employed (for example, a hospital, faculty office, field location).

Table 1 on pages 2 and 3 shows the inventory of instructional space at Central Oregon Community College as treated in this report. Instructional space is found in eight of the eleven permanent campus buildings. Rooms are identified by building, by area in square feet, and by the number of student stations (a desk, chair, or work station) contained therein. It should be noted that student-station figures are "actual" rather than "optimum," since the latter concept is somewhat arbitrary and not easily obtainable. However, the number of square feet per student station (column 4) suggests the extent to which some rooms may be more crowded than others and, hence, the "actual" number not the best number. A standard widely used over the country for planning purposes lists 15 square feet per student station in general

Table 1

RECORD OF AVAILABLE INSTRUCTIONAL SPACE

Central Oregon
Community College
Fall Term, 1974

Type of Space by Building and Room	Room Number	No. of Student Stations	Area in Square Feet	No. of Square Feet per Student Station
<u>General Classrooms</u>	(1)	(2)	(3)	(40)
Administration	28	46	1001	21.76
Deschutes	1	54	620	11.48
Deschutes	5	25	431	17.26
Deschutes	9	33	452	13.71
Jefferson	5	41	430	10.49
Jefferson	7	30	537	17.90
Ochoco	3	30	445	14.83
Pence	22	48	636	13.25
Physical Education	1	32	553	17.28
Physical Education	2	30	553	18.43
Vocational-Technical	206	45	1112	24.71
Total (11 rooms)	---	414	6770	16.35
<u>Seminar Rooms</u>		---	---	---
Deschutes	7	25	431	17.26
Library	4	38	720	18.95
Ochoco	1	19	353	18.58
Pence	2	25*	380	15.00
Total (4 rooms)	-	107	1884	17.61
<u>Teaching Auditoriums</u>		---	---	---
Ochoco	5	64	702	10.97
Total General Classrooms, Seminar and Teaching Auditoriums (16 rooms)		585	9356	15.99
*No stations in room. Number estimated based on 15 square feet per station.				

Table 1 (Continued)

RECORD OF AVAILABLE INSTRUCTIONAL SPACE

Central Oregon
Community College
Fall Term, 1974

Type of Space by Building and Room	Room Number	No. of Student Stations	Area in Square Feet *	No. of Square Feet per Student Station
<u>Teaching Laboratories</u>	(1)	(2)	(3)	(4)
Deschutes	3	16	545	34.05
Jefferson	1	26	1074	41.31
"	3	10	441	44.10
Modoc	3	20	1468	73.40
"	5	24	1611	67.12
Ochoco	7	20	1154	57.70
Pence	6	9	251**	27.89
"	8	20	369**	18.45
"	24	11	959	87.18
"	26	20	1199	59.95
"	28	50	2099	41.98
Vocational-Technical	6	8	1111	138.88
"	7	45	1476	32.80
"	14	22	1852	84.18
"	15	37	4326	116.32
"	102	22	2239	101.77
"	201	25	2133	85.32
"	204	25	966	38.64
"	205	18	992	55.11
Total Teaching Laboratories (19 rooms)	---	428	26,265	61.37
Total Regular Instructional Space (35 Rooms)	--	1013	35,621	--
* Includes related service room areas ** Prorated, omitting office area (125 sq. ft.)				

classrooms, seminar rooms, and teaching auditoriums as a reasonable area against which to measure requirements for such space. Some rooms will necessarily be over this figure and some under, but the composite average will not vary significantly where such space is efficiently utilized.

On Table 1, as a case in point, it may be seen that Central Oregon Community College showed an area of 9,356 square feet in 16 general classrooms, seminar rooms, and teaching auditoriums during the Fall Term of 1974, which translates to 15.99 square feet for each of the 585 student stations on hand. This figure appears well within reason. The 19 teaching laboratories comprise 26,265 square feet of the available instructional space, or approximately three-fourths (73.7 percent). In general, such facilities are equipped for a single discipline and may not be used interchangeably with other disciplines, as is true with general purpose classrooms. Further, the areas per student station are characteristically much greater and vary by the nature of the instruction given.

Certain spaces within the Central Oregon Community College campus, although resembling teaching laboratories, are excluded from Table 1 because a good part of their usage falls outside the limits of this study. Notable exclusions are the gymnasium and the multi-purpose room, both in the Physical Education Building and both used extensively for unscheduled or extra-curricular activities

for which no statistics are readily available. Later in this report, however, attention will be directed towards the instructional utilization of such facilities as occur on a regularly scheduled basis.

One of the often overlooked factors about a college campus is the amount of support space required in relation to instructional space. Central Oregon Community College, in its Space Inventory Printout dated February 9, 1974,* reports 160,206 gross square feet in all campus buildings, including the one residential building, Juniper Hall. To illustrate, the instructional space shown on Table 1 (35,621 square feet) amounts to only 22.2 percent of this total and only 30.4 percent of all "net assignable square feet," a standard term which excludes such areas as corridors, mechanical equipment rooms, custodial closets, and wall thicknesses. In other words, two-thirds of the Central Oregon Community College campus is not general classroom, not teaching laboratory, but space directly or indirectly supportive; e.g., the library, central administration, offices for faculty and staff, storage, shops, union. The exhibit below shows for each campus building the percentage of instructional space reflected in Table 1. While these data for total buildings are not current, the relationship is nevertheless illustrated.

*Includes additions not counted.

Exhibit 1

<u>Building</u>	<u>Gross Square Feet</u>	<u>Net Assignable Square Feet</u>	<u>Percentage of Total Building Area Allocated to Instructional Space Listed in Table 1</u>	
			<u>Gross</u>	<u>NASF</u>
Administration	7,998	4,782	12.5	20.1
Deschutes	4,830	3,776	51.3	65.7
Jefferson	4,830	3,392	51.4	73.2
Juniper	19,630	13,630	-0- *	-0-
Library	15,843	13,537	4.5	5.3
Modoc +				
Greenhouse (264)	5,094	3,618	60.4	85.1
Ochoco	4,830	3,914	55.0	67.8
Pence	11,533	7,445	51.1	79.2
Physical				
Education	36,073	25,742	3.1	4.3**
Student Union	14,526	9,311	-0-	-0-
Vocational-				
Technical	30,166	23,537	53.7	68.9
Trailers	1,819	1,565	-0-	-0-
Maintenance	3,034	2,813	-0-	-0-
	<u>160,206</u>	<u>117,062</u>	<u>22.2</u>	<u>30.4</u>

Stated in another way, Central Oregon Community College requires about two square feet of support space to maintain one square foot of the instructional space reported in Table 1. This relationship, of course, will vary with the size and complexity of an institution, but it is not likely to fall below 2:1 at any time. Indeed, in large universities this ratio will move closer towards 5:1. Suffice it to say that the critical need for support space often goes unappreciated, with the unfortunate result that a campus all too soon becomes pock-marked with unsightly, sub-standard "temporary" facilities which somehow gain an amazing permanence.

*Some basement space is temporarily used as instructional service area (Theater-Drama storage).

**See Table 7 for other instructional space not listed here.

PART II

UTILIZATION OF INSTRUCTIONAL SPACE

Days of the Week

Classroom usage during the Fall Term, 1974, is analyzed in a variety of ways. Table 2 shows the extent to which general classrooms, seminar rooms, teaching auditoriums, and teaching laboratories were used for regularly scheduled classes by day of the week. Data on these tables, therefore reflect usage for a week, not the entire term, a point which should be kept in mind throughout this report.

A review of Table 2-A reveals that 16 classrooms, including seminar rooms and teaching auditoriums, were scheduled for a weekly total of 492.5 room-periods (approximately 50 minutes each) during the Fall Term, 1974. This represents an average of 30.78 room-periods. The day on which the highest usage occurred was Monday (8.11 average room-periods), whereas Thursday was the lowest (4.37 average room-periods). Student stations, it should be noted, were used 5.13 and 2.33 (average) times per week for these two days respectively. The lower student-station figures, as compared to room periods, merely suggest that not all stations were occupied when rooms were in use. Discussion of this point will come in a later section.

Table 2- A

SUMMARY ANALYSIS
OF THE UTILIZATION OF INSTRUCTIONAL SPACE
BY DAYS OF THE WEEK

General Classroom
Seminar

Central Oregon
Community College
Fall Term, 1974

Type of Room: Teaching Auditorium

Number of Rooms: 16

Number of Student Stations: 585

Day of the Week	ROOM BASIS		STUDENT-STATION BASIS	
	Total Room Periods Used	Average No. or Room Periods Used	Total Student-Station Periods Occupied	Average No. Student-Station Periods Used
MONDAY	129.75	8.11	3,001	5.13
TUESDAY	83	5.19	1,755	3.00
WEDNESDAY	120.75	7.55	2,889.5	4.94
THURSDAY	70	4.37	1,360	2.33
FRIDAY	89	5.56	2,347	4.01
SATURDAY				
TOTAL FOR WEEK	492.5	30.78	11,352.5	19.41

Table 2- B

SUMMARY ANALYSIS
OF THE UTILIZATION OF INSTRUCTIONAL SPACE
BY DAYS OF THE WEEK

Central Oregon
Community College
Fall Term, 1974

Type of Room: General Classroom

Number of Rooms: 11

Number of Student Stations: 414

Day of the Week	ROOM BASIS		STUDENT-STATION BASIS	
	Total Room Periods Used	Average No. or Room Periods Used	Total Student-Station Periods Occupied	Average No. Student-Station Periods Used
MONDAY	90.5	8.23	2,157	5.21
TUESDAY	55.5	5.04	1,258.5	3.04
WEDNESDAY	84.5	7.68	2,085	5.04
THURSDAY	49.5	4.50	1,005.5	2.43
FRIDAY	64	5.82	1,714	4.14
SATURDAY				
TOTAL FOR WEEK	344	31.27	8,220	19.86

Table 2- C
SUMMARY ANALYSIS
OF THE UTILIZATION OF INSTRUCTIONAL SPACE
BY DAYS OF THE WEEK

Central Oregon
Community College
Fall Term, 1974

Type of Room: Seminar

Number of Rooms: 4 Number of Student Stations: 107

Day of the Week	ROOM BASIS		STUDENT-STATION BASIS	
	Total Room Periods Used	Average No. or Room Periods Used	Total Student-Station Periods Occupied	Average No. Student-Station Periods Used
MONDAY	28.25	7.06	505	4.72
TUESDAY	21.0	5.25	366	3.42
WEDNESDAY	28.25	7.06	507.5	4.75
THURSDAY	17	4.25	300	2.80
FRIDAY	17	4.25	336	3.14
SATURDAY				
TOTAL FOR WEEK	111.5	27.88	2,014.5	18.83

Table 2-D

SUMMARY ANALYSIS
OF THE UTILIZATION OF INSTRUCTIONAL SPACE
BY DAYS OF THE WEEK

Central Oregon
Community College
Fall Term, 1974

Type of Room: Teaching Auditorium

Number of Rooms: 1 Number of Student Stations: 64

Day of the Week	ROOM BASIS		STUDENT-STATION BASIS	
	Total Room Periods Used	Average No. or Room Periods Used	Total Student-Station Periods Occupied	Average No. Student-Station Periods Used
MONDAY	11	11	329	5.30
TUESDAY	6.5	6.5	130.5	2.04
WEDNESDAY	8	8	297	4.64
THURSDAY	3.5	3.5	54.5	.85
FRIDAY	8	8	297	4.64
SATURDAY				
TOTAL FOR WEEK	37	37	1,118	17.47

Table 2- E

SUMMARY ANALYSIS
OF THE UTILIZATION OF INSTRUCTIONAL SPACE
BY DAYS OF THE WEEK

Central Oregon
Community College
Fall Term, 1974

Type of Room: Teaching Laboratories

Number of Rooms: 19

Number of Student Stations: 428

Day of the Week	ROOM BASIS		STUDENT-STATION BASIS	
	Total Room Periods Used	Average No. or Room Periods Used	Total Student-Station Periods Occupied	Average No. Student-Station Periods Used
MONDAY	112	5.89	1,760	4.11
TUESDAY	118.5	6.24	1,833.5	4.29
WEDNESDAY	105	5.53	1,594	3.72
THURSDAY	100.5	5.29	1,520.5	3.56
FRIDAY	66	3.47	1,118.5	2.61
SATURDAY				
TOTAL FOR WEEK	502	26.42	7,826.5	18.29

Comparable data for teaching laboratories are presented in Table 2-E on page 12. The 19 rooms analyzed were used an average of 26.42 times per week during Fall Term, 1974. Similarly, the 428 student stations received an average use of 18.29 times per week. The heaviest day of usage occurred on Tuesday when room-periods averaged 6.24 and student-station-periods, 4.29. Mondays, Wednesdays, and Thursdays were about equal in these two categories while Fridays showed the lowest level of usage. From the data on Table 2-E it can be determined that total teaching laboratory room-periods used (on Friday) were only 56 percent of that on Tuesday, the day of highest usage.

Hours of the Day

Utilization of instructional rooms by hour of the day is shown on Table 3, with additional tables for each type of room. Again, the basic data are the same as presented on Table 2 except usage is viewed in terms of hour rather than day. It should be born in mind, however, that "hour" as used in Table 3 refers to week. Thus, the interval 8:00 to 9:00 a.m. represents a time frame during which rooms are available for scheduling classes throughout the week--roughly 5 class periods of approximately 50 minutes each. For example, on Table 3-A it can be seen that the average number of room-periods used per week (classrooms, seminar rooms, and teaching auditoriums) during that hour

Table 3- A

SUMMARY ANALYSIS
OF THE UTILIZATION OF INSTRUCTIONAL SPACE
BY HOURS OF THE DAY

General Classroom
Seminar
Type of Room: Teaching Auditorium

Central Oregon
Community College
Fall Term, 1974

Number of Rooms: 16 Number of Student Stations: 585

Hours of the Day	ROOM BASIS		STUDENT-STATION BASIS	
	Total Number of Room Periods Used per Week	Avg. Number of Room Periods Used per Week	Total Number of Student- Station- Periods Used per Week	Avg. Number of Student- Station- Periods Used per Week
7:00- 8:00				
8:00- 9:00	42	2.62	1,364	2.33
9:00-10:00	65	4.06	1,753.5	3.00
10:00-11:00	65	4.06	1,551	2.65
11:00-12:00	55	3.44	1,443	2.47
12:00- 1:00	49	3.06	1,122	1.92
1:00- 2:00	39	2.44	899	1.54
2:00- 3:00	52	3.25	1,019	1.74
3:00- 4:00	30	1.88	629	1.08
4:00- 5:00	7	.44	171	.29
5:00- 6:00				
6:00- 7:00	10	.62	192	.33
7:00- 8:00	27	1.69	438	.75
8:00- 9:00	32	2.00	499	.85
9:00-10:00	18.5	1.16	268	.46
10:00-11:00	1	.06	4	.007
TOTAL WEEK	492.5	30.78	11,352.5	19.41

Table 3- B

SUMMARY ANALYSIS
OF THE UTILIZATION OF INSTRUCTIONAL SPACE
BY HOURS OF THE DAY

Central Oregon
Community College
Fall Term, 1974

Type of Room: General Classroom

Number of Rooms: 11

Number of Student Stations: 414

Hours of the Day	ROOM BASIS		STUDENT-STATION BASIS	
	Total Number of Room Periods Used per Week	Avg. Number of Room Periods Used per Week	Total Number of Student- Station- Periods Used per Week	Avg. Number of Student- Station- Periods Used per Week
7:00- 8:00				
8:00- 9:00	34	3.09	1,121	2.71
9:00-10:00	44	4.00	1,148.5	2.78
10:00-11:00	44	4.00	1,138	2.75
11:00-12:00	35	3.18	995	2.40
12:00- 1:00	31	2.82	751	1.81
1:00- 2:00	28	2.54	656	1.58
2:00- 3:00	33	3.00	672	1.62
3:00- 4:00	19	1.73	444	1.08
4:00- 5:00	7	.64	171	.41
5:00- 6:00				
6:00- 7:00	8	.73	152	.37
7:00- 8:00	21	1.91	357	.86
8:00- 9:00	23	2.09	372	.90
9:00-10:00	16	1.45	238.5	.58
10:00-11:00	1	.09	4	.01
TOTAL WEEK	344	31.27	8,220	19.86

Table 3-C

SUMMARY ANALYSIS
OF THE UTILIZATION OF INSTRUCTIONAL SPACE
BY HOURS OF THE DAY

Central Oregon
Community College
Fall Term, 1974

Type of Room: Seminar

Number of Rooms: 4

Number of Student Stations: 107

Hours of the Day	ROOM BASIS		STUDENT-STATION BASIS	
	Total Number of Room Periods Used per Week	Avg. Number of Room Periods Used per Week	Total Number of Student- Station- Periods Used per Week	Avg. Number of Student- Station- Periods Used per Week
7:00- 8:00				
8:00- 9:00	5	1.25	78	.73
9:00-10:00	16	4.00	387	3.62
10:00-11:00	17	4.25	305	2.85
11:00-12:00	16	4.00	269	2.51
12:00- 1:00	14	3.50	263	2.46
1:00- 2:00	7	1.75	183	1.71
2:00- 3:00	15	3.75	259	2.42
3:00- 4:00	8	2.00	86	.81
4:00- 5:00				
5:00- 6:00				
6:00- 7:00	2	.50	40	.37
7:00- 8:00	4	1.00	50	.47
8:00- 9:00	6	1.50	79	.74
9:00-10:00	1.5	.38	15.5	.14
10:00-11:00				
TOTAL WEEK	111.5	27.88	2,014.5	18.83

Table 3- D

SUMMARY ANALYSIS
OF THE UTILIZATION OF INSTRUCTIONAL SPACE
BY HOURS OF THE DAY

Central Oregon
Community College
Fall Term, 1974

Type of Room: Teaching Auditorium

Number of Rooms: 1

Number of Student Stations: 64

Hours of the Day	ROOM BASIS		STUDENT-STATION BASIS	
	Total Number of Room Periods Used per Week	Avg. Number of Room Periods Used per Week	Total Number of Student- Station- Periods Used per Week	Avg. Number of Student- Station- Periods Used per Week
7:00- 8:00				
8:00- 9:00	3	3	165	2.58
9:00-10:00	5	5	218	3.41
10:00-11:00	4	4	108	1.69
11:00-12:00	4	4	179	2.79
12:00- 1:00	4	4	108	1.69
1:00- 2:00	4	4	60	.94
2:00- 3:00	4	4	88	1.37
3:00- 4:00	3	3	99	1.55
4:00- 5:00				
5:00- 6:00				
6:00- 7:00				
7:00- 8:00	2	2	31	.48
8:00- 9:00	3	3	48	.75
9:00-10:00	1	1	14	.22
10:00-11:00				
TOTAL WEEK	37	37	1,118	17.47

Table 3- E

SUMMARY ANALYSIS
OF THE UTILIZATION OF INSTRUCTIONAL SPACE
BY HOURS OF THE DAY

Central Oregon
Community College
Fall Term, 1974

Type of Room: Teaching Laboratory

Number of Rooms: 19

Number of Student Stations: 428

Hours of the Day	ROOM BASIS		STUDENT-STATION BASIS	
	Total Number of Room Periods Used per Week	Avg. Number of Room Periods Used per Week	Total Number of Student-Station-Periods Used per Week	Avg. Number of Student-Station-Periods Used per Week
7:00- 8:00	2	.11	44	.11
8:00- 9:00	52	2.74	831	1.94
9:00-10:00	55.5	2.92	1,067	2.50
10:00-11:00	67	3.52	1,219	2.85
11:00-12:00	55.5	2.92	797	1.86
12:00- 1:00	15	.79	228	.53
1:00- 2:00	53	2.79	887	2.07
2:00- 3:00	56.5	2.97	735	1.72
3:00- 4:00	50	2.63	716	1.67
4:00- 5:00	31	1.63	476	1.11
5:00- 6:00				
6:00- 7:00	3	.16	18	.04
7:00- 8:00	20.5	1.08	265.5	.62
8:00- 9:00	23	1.21	305	.71
9:00-10:00	18	.95	238	.56
10:00-11:00				
TOTAL WEEK	502	26.42	7,826.5	18.29

was 2.62. Further, the most intense usage occurred during the two morning intervals, 9:00 to 10:00 and 10:00 to 11:00. Room usage fell off significantly after 3:00 p.m. Of the weekly average of 30.78 room periods, however, it should be noted that 5.53 occurred after 6:00 p.m. (18.0 percent). Hence, between the day hours of 8:00 a.m. to 5:00 p.m., the 16 general purpose classrooms reported in this study were used an average of 25.25 times per week during Fall Term, 1974.

Teaching laboratories (Table 3-E, page 18) were used heaviest between 10:00 and 11:00 a.m. (3.52 average room periods), although usage throughout the morning, as well as the three afternoon intervals between 1:00 and 4:00, reach approximately equal levels. Of the 26.42 room-periods used during the week, 23.02 occurred between 8:00 a.m. and 5:00 p.m. and 3.40 during the evening hours after 6:00 p.m.

Student-station usage in teaching laboratories ranged from a low of 0.53 times per week between 12:00 and 1:00 p.m. to a high of 2.85 between 10:00 and 11:00 a.m. when class sizes were largest. Because of the multiple-hour blocks employed in scheduling laboratory classes, the 12:00 to 1:00 interval showed a sharper drop in usage than was true for general purpose classrooms (Table 3-A). One should bear in mind, also, that most laboratories require a period of "set-up" time prior to the class

session, so utilization of these facilities normally will not reach the levels achieved in general purpose classrooms. This fact is born out by the lower number of room-periods used for the week (26.42 versus 30.78 for classrooms). The difference may be further accounted for by the specialized nature of teaching laboratories. The facility must be provided even though student demand for a particular instruction might remain low with no opportunity to share with other disciplines.

In general, class sizes in all types of instructional space between 8:00 a.m. and 5:00 p.m. were considerably greater than during the evening hours. For example, from the data provided in Table 3-A, one can determine that general purpose classrooms averaged 24.6 students per class between 8:00 a.m. and 5:00 p.m. but only 15.8 after 6:00 p.m. For teaching laboratories, comparable figures were 16.11 and 12.8 respectively.*

Utilization of Instructional Rooms by Building

Another way to view space utilization is by building. The same data as presented in the two previous tables may be rearranged to reflect the extent to which usage of general purpose classrooms and teaching laboratories varies among the several campus buildings containing such facilities.

*Class sizes may be calculated for other time intervals by dividing total student-station-periods used per week by total room-periods used.

Tables 4-A through 4-E show instructional usage by room type and by building for Fall Term, 1974. The inventory of instructional space by building was presented in Table 1. Reference back to that table can be made for specific room information, square footage, etc., since Table 4 deals essentially with room-periods and student-station-periods of use for the building as a whole.

In the category of general classrooms, seminar rooms, and teaching auditoriums (Table 4-A, page 22), one sees that Deschutes Hall recorded the greatest number of room-periods (137) and student-station-periods (3,372) of use. Such a finding is not surprising in view of the fact that Deschutes Hall has the greatest amount of space in this category (see Table 1). However, the average number of room (and student-station) periods was also highest (34.25 times per week for rooms and 24.61 times per week for student stations). The column on the extreme right of Table 4-A provides a measure of class-size efficiency; i.e., how well the classes scheduled into a room were "matched" in size. For example, 67.13 percent of the student stations were in use (Deschutes Hall) when rooms were actually assigned. Expressed in another way, this is equivalent to a room having 34 stations and a constant class size of 23, similar to Deschutes Hall's four general purpose classrooms, which contain 137 student stations.

Table 4-A

SUMMARY OF UTILIZATION OF INSTRUCTIONAL SPACE
BY BUILDINGCentral Oregon
Community College
Fall Term, 1974Type of Room: General Classroom, Seminar,
Teaching Auditorium

Building	ROOM BASIS			STUDENT-STATION BASIS			
	Number of Rooms	Total No. Periods Rms. Used Per Week	Avg. No. of Periods Rooms Used Per Week	Number of Student Stations	Total No. Periods Stud. Sta. Used Per Week	Avg. No. Periods Stud. Sta. Used Per Week	Percentage of Use When Rooms Assigned
Administration	1	28	28.00	46	684	14.87	53.11
Deschutes	4	137	34.25	137	3372	24.61	67.13
Jefferson	2	68	34.00	71	1460.5	20.57	61.06
Library	1	26	26.00	38	645	16.97	65.28
Ochoco	3	108	36.00	113	2202	19.49	52.98
Pence	2	59	29.50	73	1401	19.19	62.39
Physical Education	2	37.5	18.75	62	938	15.13	81.92
Vocational-Technical	1	29	29.00	45	650	14.44	49.81
TOTAL ALL BUILDINGS	16	492.5	30.78	585	11,352.5	19.41	61.22

Table 4-B

SUMMARY OF UTILIZATION OF INSTRUCTIONAL SPACE
BY BUILDING

Central Oregon
Community College
Fall Term, 1974

Type of Room: General Classroom

	ROOM BASIS			STUDENT-STATION BASIS			
	Number of Rooms	Total No. Periods Rms. Used Per Week	Avg. No. of Periods Rooms Used Per Week	Number of Student Stations	Total No. Periods Stud. Sta. Used Per Week	Avg. No. Periods Stud. Sta. Used Per Week	Percentage of Use When Rooms Assigned
Building							
Administration	1	28	28.00	46	684	14.87	53.11
Deschutes	3	108	36.00	112	2867	25.60	66.71
Jefferson	2	37.5	18.75	62	938	15.13	81.92
Ochoco	2	68	34.00	71	1460.5	20.57	61.06
Pence	1	40	40.00	30	575	19.17	47.92
Physical Education	1	33.5	33.50	48	1045.5	21.78	65.02
Vocational-Technical	1	29	29.00	45	650	14.44	49.81
TOTAL ALL BUILDINGS	11	344	31.27	414	8220	19.86	62.10

Table 4-C

SUMMARY OF UTILIZATION OF INSTRUCTIONAL SPACE
BY BUILDINGCentral Oregon
Community College
Fall Term, 1974

Type of Room: Seminar

Building	ROOM BASIS			STUDENT-STATION BASIS			
	Number of Rooms	Total No. Periods Rms. Used Per Week	Avg. No. of Periods Fooms Used Per Week	Number of Student Stations	Total No. Periods Stud. Sta. Used Per Week	Avg. No. Periods Stud. Sta. Used Per Week	Percentage of Use When Rooms Assigned
Deschutes	1	29	29.00	25	505	20.20	69.66
Library	1	26	26.00	38	645	16.97	65.28
Ochoco	1	31	31.00	19	509	26.79	86.42
Pence	1	25.5	25.50	25*	355.5	14.22	55.76
TOTAL ALL BUILDINGS	4	111.5	27.88	107	2014.5	18.83	68.53

* Est. @ 15 sq. ft. per station

Table 4-D

SUMMARY OF UTILIZATION OF INSTRUCTIONAL SPACE
BY BUILDINGCentral Oregon
Community College
Fall Term, 1974

Type of Room: Teaching Auditorium

	ROOM BASIS			STUDENT-STATION BASIS			
	Number of Rooms	Total No. Periods Rms. Used Per Week	Avg. No. of Periods Rooms Used Per Week	Number of Student Stations	Total No. Periods Stud. Sta. Used Per Week	Avg. No. Periods Stud. Sta. Used Per Week	Percentage of Use When Rooms Assigned
Building							
Ochoco	1	37	37.00	64	1118	17.47	47.21
TOTAL ALL BUILDINGS	1	37	37.00	64	1118	17.47	47.21

Table 4-E

SUMMARY OF UTILIZATION OF INSTRUCTIONAL SPACE
BY BUILDINGCentral Oregon
Community College
Fall Term, 1974

Type of Room: Teaching Laboratories

Building	ROOM BASIS			STUDENT-STATION BASIS			
	Number of Rooms	Total No. Periods Rms. Used Per Week	Avg. No. of Periods Rooms Used Per Week	Number of Student Stations	Total No. Periods Stud. Sta. Used Per Week	Avg. No. Periods Stud. Sta. Used Per Week	Percentage of Use When Rooms Assigned
Deschutes	1	23.5	23.50	16	167	10.44	44.41
Jefferson	2	61	30.50	36	712	19.78	62.57
Modoc	2	60	30.00	44	1264	28.73	93.22
Ochoco	1	33	33.00	20	670	33.50	101.52
Pence	5	100.5	20.10	110	1414.5	12.86	57.27
Vocational-Technical	8	224	28.00	202	3749	18.56	66.30
TOTAL ALL BUILDINGS	19	502	26.42	428	7826.5	18.29	67.15

The two classrooms in the Physical Education Building were better matched (81.92 percent) in class size but less efficiently used since the average room-periods of use was only 18.75 as compared to 30.78 for all buildings in the category in question. It should be noted that Modoc Hall had no general purpose classrooms in inventory as of Fall Term, 1974. In Ochoco Hall, while the rooms were scheduled intensively (36 times per week average), student stations were only 52.98 percent filled when rooms were in use. This might be compared to a room with 38 student stations and a constant class size of 20 students--roughly half the room's capacity.

Taking a look at teaching laboratories, one finds that Ochoco Hall, which has only one room in this category, utilizes student stations at a higher average rate than room periods (33.50 versus 33.00 respectively). This situation arises when more students than stations appear in the room, suggesting a crowded condition or use of the room for other than laboratory-type instruction. For example, large lecture sessions were scheduled into Ochoco 7 (Geology and Physics lab). Since the station count refers to laboratory stations only, thus ignoring the tablet-arm chairs clustered at one end of the room, the efficiency index as reflected in the extreme right-hand column actually represents an overstatement of use according to room function. The same overstatement will occur in any teaching laboratory in which lecture-type

classes are held with enrollments in excess of the number of laboratory student stations and in which the laboratory milieu is not essential or desirable for the instruction given.

In summary, it can be stated that, with regard to room-periods of use during the Fall Term, 1974, general purpose classrooms tended to receive greater utilization on the average than teaching labs (30.78 as compared to 26.42). However, the reverse was true with regard to student stations, wherein the percentage of use when rooms were assigned was 67.15 percent for teaching labs and 61.22 percent for general purpose classrooms. These facts are in keeping with national patterns.

Utilization by Size of Room

Still another way of measuring the use of instructional space is by size of rooms. To a large extent, the size factor determines the efficiency which may be achieved on any campus, regardless of enrollment. If only one size of room is provided, obviously the efficiency will be reduced so long as class sizes vary downward from capacity.

Tables 5-A and 5-B on the following pages show Central Oregon Community College's available instructional space in room-size intervals of five. General purpose classrooms ranged in size from 19 to 64 student stations (see Table 1 for individual rooms). Teaching laboratories ranged from 8 to 50. For classrooms, the greatest number

Table 5- A

**SUMMARY ANALYSIS
OF THE UTILIZATION OF INSTRUCTIONAL SPACE
BY SIZE OF ROOMS**

Central Oregon
Community College
Fall Term, 1974

Type of Room: General Classroom, Seminar Room, Teaching Auditoriums

ROOM CAPACITY (Number of Student- Stations in Room)	ROOM BASIS			STUDENT-STATION BASIS			
	Number of Rooms	Total No. of Periods Used per Week	Average No. Periods Rooms Used per Week	Number of Student Stations	Total No. Periods Student- Stations Used/Week	Average No Periods Student- Stations Used/Week	Percentage of Use When Rooms Assigned
1 to 5							
6 to 10							
11 to 15							
16 to 20	1	31	31.00	19	509	26.79	86.42
21 to 25	3	83.5	27.83	75	1369.5	18.26	65.60
26 to 30	3	103.5	34.50	90	1940	21.56	62.48
31 to 35	2	43	21.50	65	1122	17.26	79.63
36 to 40	1	26	26.00	38	645	16.97	65.28
41 to 45	2	61	30.50	86	1470.5	17.10	56.19
46 to 50	2	61.5	30.75	94	1729.5	18.40	59.72
51 to 55	1	46	46.00	54	1449	26.83	58.33
56 & Over	1	37	37.00	64	1118	17.47	47.21
TOTAL ALL ROOMS	16	492.50	30.78	585	11,352.5	19.41	61.22

Table 5-B

SUMMARY ANALYSIS
OF THE UTILIZATION OF INSTRUCTIONAL SPACE
BY SIZE OF ROOMS

Central Oregon
 Community College
 Fall Term, 1974

Type of Room: Teaching Laboratories

ROOM CAPACITY (Number of Student- Stations in Room)	ROOM BASIS			STUDENT-STATION BASIS			
	Number of Rooms	Total No. of Periods Rooms Used per Week	Average No. Periods Rooms Used per Week	Number of Student Stations	Total No. Periods Student- Stations Used/Week	Average No. Periods Student- Stations Used/Week	Percentage of Use When Rooms Assigned
1 to 5							
6 to 10	3	54	18.00	27	321	11.89	63.69
11 to 15	1	21	21.00	11	227	20.64	100.76
16 to 20	6	156.5	26.08	114	1957	17.17	66.34
21 to 25	5	161	32.20	118	3341	28.31	87.64
26 to 30	1	33	33.00	26	592	22.77	69.00
31 to 35							
36 to 40	1	35	35.00	37	460	12.43	35.52
41 to 45	1	14	14.00	45	332	7.38	53.00
46 to 50	1	27.5	27.50	50	596.5	11.93	43.38
51 to 55							
56 & Over							
TOTAL ALL ROOMS	19	502	26.42	428	7,826.5	18.29	67.15

of room-periods of use occurred in rooms in the 26 to 30 room-size interval. Even so, the three rooms in this interval were not as efficiently used--once assigned--as the two rooms in the following interval. Note that the percentage of student stations used was 79.63 for the larger interval but only 62.48 for the smaller. The one room in the 16 to 20 interval was used quite heavily in both room-periods (31.00) and student-station-periods (86.42 percent filled when room was assigned).

Eleven of the 19 teaching laboratories fall into the room-capacity interval 16 to 20 and 21 to 25. Approximately two-thirds of the student-station-periods occupied in all teaching labs were generated in these two intervals of room size.

Class Size in Relation to Room Capacity

A further view of space utilization is provided when the data are arranged so that class-meeting sizes are compared directly with room capacities. This relationship may be seen in Tables 6-A and 6-B on pages 32 and 33 respectively. At first glance, these tables may not prove easy to comprehend. Nevertheless, they offer extremely valuable information about student enrollment and room-use patterns in summary form. For instance, in the room-capacity interval 16 to 20, it can be seen on Table 6-A that 31 class-period meetings took place in rooms of that size. Of the 31 meetings, 22 were with groups of 16 to 20

Table 6-A

UTILIZATION OF INSTRUCTIONAL SPACE:
CLASS SIZE IN RELATION TO ROOM CAPACITY

Central Oregon
Community College
Fall Term, 1974

Type of Room General Classrooms, Seminar Rooms, Teaching Auditoriums

ROOM CAPACITY (No. of Student Stations)	Number of Class-Period Meetings per Week for Classes of Each Group										Total	Per- cent- age	Cum. Per- cent- age
	1 to 5	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	31 to 35	36 to 40	41 to 45	46 to 50	51 to 55	56 to over	
1 to 5													
6 to 10													
11 to 15													
16 to 20													
21 to 25													
26 to 30													
31 to 35													
36 to 40													
41 to 45													
46 to 50													
51 to 55													
56 & Over													
Total	13	39.5	90	106	48	79.5	67	19	5.5	16	6	3	492.5
Percentage	2.64	8.02	18.27	21.52	9.75	16.14	13.60	3.86	1.12	3.25	1.22	.61	100.0
Cumulative Percentage	2.64	10.66	28.93	50.45	60.20	76.34	89.94	93.80	94.92	98.17	99.39	100.0	

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Table 6-B

UTILIZATION OF INSTRUCTIONAL SPACE:
CLASS SIZE IN RELATION TO ROOM CAPACITY

Central Oregon
Community College
Fall Term, 1974

Type of Room Teaching Laboratories

ROOM CAPACITY (No. of Student Stations)	Number of Class-Period Meetings per Week for Classes of Each Group												Total	Per- cent- age	Cum. Per- cent age	
	1 to 5	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	31 to 35	36 to 40	41 to 45	46 to 50	51 to 55	56 to over				
1 to 5																
6 to 10	25	25	1	3									54	10.76	10.76	
11 to 15		16	3	1	1								21	4.18	14.94	
16 to 20	37.5	32	30	36	18							3	156.5	31.18	46.12	
21 to 25		13	49	17	55	3	14	6	4				161	32.07	78.19	
26 to 30		4	9.5	11.5		8							33	6.57	84.76	
31 to 35																
36 to 40		9	24	2									35	6.97	91.73	
41 to 45			3	4	2		5						14	2.79	94.52	
46 to 50	4	2	6.5		3	3	3	6					27.5	5.48	100.0	
51 to 55																
56 & Over																
Total	66.5	101	126	74.5	79	14	22	12	4			3	502			
Percentage	13.25	20.12	25.10	14.84	15.74	2.79	4.38	2.39	.79			.60		100.0		
Cumulative Percentage	13.25	33.37	58.47	73.31	89.05	91.84	96.22	98.61	99.40			100.0				

Table 6-C

UTILIZATION OF INSTRUCTIONAL SPACE:
CLASS SIZE IN RELATION TO ROOM CAPACITY

Evening Use Only

Type of Room General Classroom, Seminar Room, and Teaching Auditorium

Central Oregon
Community College
Fall Term, 1974

ROOM CAPACITY (No. of Student Stations)	Number of Class-Period Meetings per Week for Classes of Each Group												Total	Per- cent- age	Cum. Per- cent age	
	1 to 5	6 to 10	11 to 15	16 to 20	21 to 25	26 to 30	31 to 35	36 to 40	41 to 45	46 to 50	51 to 55	56 to over				
1 to 5																
6 to 10																
11 to 15																
16 to 20		3											3	3.39	3.3	
21 to 25		8.5	6	2									16.5	18.64	22.0	
26 to 30	4	4	3		5	3							19	21.47	43.5	
31 to 35			2		3								5	5.65	49.1	
36 to 40																
41 to 45		8.5	4	6									18.5	20.91	70.0	
46 to 50				5		3			2.5				10.5	11.86	81.9	
51 to 55			4	6									10	11.30	93.2	
56 & Over			3	3									6	6.78	100.0	
Total	4	24	22	22	8	6			2.5				88.5			
Percentage	4.52	27.12	24.86	24.86	9.04	6.78										
Cumulative Percentage	4.52	31.64	56.50	81.36	90.40	97.18			100.0					100.0		

students, thus matching the size of the rooms; 2 had between 11 and 15 students; and the remaining 7 were composed of groups of 6 to 10 students. Hence, 71.0 percent of the classes meeting in general purpose classrooms with a room capacity between 16 and 20 "matched" the room in size. On the other hand, 106 class-period meetings took place with groups of 16 to 20 students, which means that only 20.8 percent of these meetings were held in rooms of similar size while 79.2 percent were held in rooms of increasingly larger capacity.

Figures on Tables 6-A and 6-B which appear to the left of the heavy diagonal line represent class sizes which fall one interval or more below corresponding room capacity. Those immediately over the line represent the number of class-size meetings which match the room capacity. Only two intervals contain data to the right of the matched position. These represent 9 meetings of class sizes 26 to 30 and 9 meetings of class sizes 31 to 35. Both groups are just one interval greater in size than corresponding room capacity, which indicates that additional chairs probably were brought into the room in order to accommodate a few extra students. Such instances are common in class scheduling and do not necessarily indicate an overcrowded condition. Only by reviewing other statistics for the room in question can one determine whether additional student stations might be placed therein without overly crowding the available floor space. For

example, work papers show that the 18 class-period meetings occurred in four rooms--Deschutes 5 and 7, Physical Education 2, and Jefferson 7. On looking at Table 1, one finds that the square feet per student station in each of these rooms is in excess of 17.25, or well above the average for all such rooms. So the additional student load does not, in reality, overtax the facilities. Table 6 merely draws attention to areas where room capacity adjustments were likely made, with corrections to the inventory perhaps indicated. As mentioned earlier, room capacity is best defined in terms of the actual number of stations on hand at the time of inventory. Subsequent inventories will automatically monitor and correct such anomalies as above, providing the inventories are undertaken concurrently with the space study itself. Even so, minor differences will doubtless arise and be reflected in annual space studies.

Another interesting aspect of Tables 6-A and 6-B is found in the "cumulative percentage" column. For example, it can be seen that three-fourths (76.34 percent) of all class-period meetings in general purpose classrooms had class sizes of 30 students or less. Conversely, only 3.25 percent had groups larger than 45 students. Still further, while only 23.12 percent of all class-period meetings took place in general purpose classrooms with room capacity of 25 or less, 60.20 percent of all class meetings were, in

fact, no greater in size.

It should be remembered that evening usage is included in Tables 6-A and 6-B and that class sizes during this time were indeed smaller. A quick look at Table 3-A shows that 88.5 room-periods of use occurred during evening hours after 6:00 p.m. Since a total of 86 of these had student groups of 30 or less, an additional table was prepared to show their dispersion (Table 6-C on page 34).

On Table 6-B the excessive class-period meetings which occurred in room-capacity interval 21 to 25 reflect the extent to which large lecture sections were crowded into teaching laboratories, a finding reported earlier. The practice cannot be ignored, however. Attention will be focused directly on it later in this report.

PART III

OTHER INSTRUCTIONAL FACILITIES

A number of courses utilize campus space other than general purpose classrooms and/or teaching laboratories to conduct educational experiences as called for in the course description. Sometimes such space is used merely as a convenience, but in most instances it is essential; e.g., music practice rooms, handball courts, the gymnasium.

A record of the use of other instructional facilities is shown in Table 7 on page 39. The multi-purpose room in the Physical Education Building might well be classified as a teaching laboratory. Certainly it is utilized heavily in Central Oregon Community College's instructional program. However, it also serves extensively on a non-scheduled basis and, like the gymnasium itself, offers less statistical confusion if excluded from the formal-use category as reflected in previous tables. With regard to the use of the multi-purpose room for regularly scheduled classes, it can be seen on Table 7 that it compares favorably with other teaching labs in room periods used per week (39) and in student-station-periods of occupancy (698). There are no student stations as such in the room. Nevertheless,

Table 7

RECORD OF USE OF OTHER INSTRUCTIONAL FACILITIES

Central Oregon
Community College
Fall Term, 1974

Building Name	Room Number	Description of Space	No. of Student Stations	Area in Square Feet	No. Room Periods per Week	No. Student Station Periods Occup./Week	Area per Student Station Period Used
Administration	30	Data Processing	--	437	5	45	9.71
Counseling South (Trailer) (ONAC)	--	Native American Club Room	8	199	4	68	2.93
Library	3	Learning Resources Lab	38	752	12	318	2.36
Physical Education	--	Handball Courts	--	1,600	9	90	17.78
Physical Education	--	Multi-purpose Room	--	3,896	39	698	5.58
Physical Education	--	Gymnasium	--	10,846	18	373	29.08
Pence	29) 31) 33) 35) 37) 39)	Music Practice Rooms (6 rooms)	6	264	40*	239*	1.10*
Vocational-Technical	101	Apprenticeship Lab	--	2,738	6	119	23.01
Totals				20,732	133	1,950	10.63

*Estimated (see page 42).

the area per student-station-period occupied (5.58 square feet) indicates the level of use. A comparable figure for the 19 teaching labs included in this study is 3.36 square feet (keep in mind that this index decreases as the level of use increases). To express the relationship of use in the multi-purpose room to the average use for all teaching labs can be achieved in the following manner:

Exhibit 2

	<u>Multi-purpose Room</u>	<u>All Teaching Laboratories</u>
Area/square feet	3,896	26,265
No. Student-Station- Periods Occupied (SSPO)	698	7,826.5
Area per SSPO	5.58	3.36
SSPO required to achieve 3.36	1,160 ($3,896 \div 3.36$)	-0-
Percentage increase in use required	66% ($462 \div 698$)	-0-

The analysis above suggests that 39 room-periods per week, while 47.6 percent higher than the average for all teaching labs (26.42), is not necessarily a good indicator of room use when taken alone. Floor area in relation to student traffic (student-station-periods occupied) offers a much more comprehensive picture, though this statistic is rather hard to visualize.

The Data Processing room in the Administration Building (Room 30) serves administrative functions primarily. Additionally, it serves as a teaching

laboratory for students enrolled in data processing courses, offsetting the need for other laboratory space of this nature so long as administrative requirements are met. Nevertheless, 45 student-station-periods occupied per week for teaching purposes represents approximately 35 percent of a student load for an area this large, when comparing Room 30 to usage for all teaching laboratories.*

A special comment should be made concerning the apprenticeship laboratory (Room 101) in the Vocational-Technical Building. It meets the criteria of a teaching laboratory in every respect but has been excluded from that category because of its basically inactive status. Its inclusion would, in effect, distort the data for rooms in regular use, since its usage would have to increase by 600 percent to equal average usage for all teaching laboratories. The student-station-periods of occupancy shown reflect mostly week-end and evening usage, with one class meeting all day on Friday and Saturday of every third week of the month only. The remaining 39 SSPO were generated in one evening class on Monday.

The data on Table 7 for Music Practice Rooms are estimated, since no record is kept on the use of these facilities. Needless to say, the six rooms in this

*45 SSPO x 3.36 (area per SSPO for all teaching labs) = 151.20 sq. ft.
 Area of room = 437 sq. ft.
 $151.20 \div 437 = 34.6$ (percent of prorated area to teaching)

category are used intensively. Student-station-periods of occupancy were arrived at as follows:

Exhibit 3

<u>Music Area</u>	<u>Enroll- ment</u>	<u>Typical Hours per Week per Student in Music Practice Room</u>	<u>Estimated Student-Station- Periods of Occupancy in Music Pract. Rm.</u>
Music Theory	25	1	25
Music Literature	0	1	0
Band/Chorus/ Orchestra	74	1	74
Applied Music	36	3	108
Ensemble	<u>32</u>	1	<u>32</u>
	<u>167</u>		<u>239</u>

Not all students enrolled in music courses will use the music practice rooms in Pence Hall. Some will find it more convenient to practice elsewhere. Some will practice more than the above "typical" estimate, which might be regarded as a minimum-use figure. To illustrate the adequacy of the space provided in Pence Hall, together with corresponding efficiency as indicated by the above data in Exhibit 3, one can treat all six music practice rooms as though they were one classroom with 6 student stations and with an area of 264 square feet. The 239 SSPO yields 1.10 square feet per SSPO. If we assume the same percent of station occupancy when the "room" is assigned as resulted for all teaching laboratories (67.15 percent), then 59 room-periods per week

would be required to generate the estimated 239 student-station-periods of occupancy.* This represents 8 hours per day for each of the 6 stations (music practice rooms) for 5 days per week, so the estimated level of usage appears reasonable as well as the adequacy of the area for the function being served at present enrollments.

In summary, the area of all "other instructional facilities" used during Fall Term, 1974, amounts to 20,732 square feet, or 58.2 percent of that shown in Table 1 for regular instructional space. Student-station-periods of occupancy (1,950) represents 10.2 percent of those which occurred in all instructional classrooms and laboratories regularly available for scheduling.

Courses Not Requiring the Assignment of Regular Instructional Space

Table 8 provides a list of courses which were held during Fall Term, 1974, but which made no demands on space regularly available for classes. Some were athletic courses, such as tennis, that meet out-of-doors on designed areas. Others utilized various field locations, while still others were individualized in nature and enabled contact with students to be made in the instructor's office.

$$\begin{aligned}
 \text{*Number of room-periods used} &= \text{SSPO} \div (\# \text{ stations} \times \\
 &\quad \# \text{ occupancy}) \\
 &= 239 \div (6) (.6715) \\
 &= 59
 \end{aligned}$$

Table 8

RECORD OF ENROLLMENT IN SCHEDULED AND NON-SCHEDULED COURSES
NOT REQUIRING THE ASSIGNMENT OF REGULAR INSTRUCTIONAL CLASSROOMS

Central Oregon
Community College
Fall Term, 1974

Department, Course, and Section Number	Course Title	Quarter Credit Hours	Enroll- ment	Total Student Cr. Hrs.	Student Station Periods	Instructional Setting
Automotive Technology 3.216-47	Cooperative Work Experience	2	3	6	15	Faculty Office (& local shop)
College Reading 0.541-107	Learning Resources	3	20	60	60	Faculty Office
0.541-108	Learning Resources	3	19	57	57	Faculty Office
English 204-270	Shakespeare	4	1	4	4	Faculty Office
Forestry Technology 8.131-201, 203, -204, 206	Tree Identification Lab	--*	66	--*	264	Field
8.173-208	Forest Recreation Lab	--	33	--	99	Field
8.175-210	Soils & Watershed Principles Lab	--	38	--	152	Field
8.183-218	Forest Products Mfg. Lab	--	16	--	64	Field
8.184-221, 222	Silviculture Principles Lab	--	35	--	105	Field
8.186-225, 226	Logging Methods Lab	--	31	--	124	Field
8.190	Special Forestry Project	3	1	3	3	Faculty Office
Language (Foreign) RL-188-185	Special Studies	3	1	3	3	Faculty Office

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*Credit assigned to lecture.

Table 8

RECORD OF ENROLLMENT IN SCHEDULED AND NON-SCHEDULED COURSES
NOT REQUIRING THE ASSIGNMENT OF REGULAR INSTRUCTIONAL CLASSROOMS

Central Oregon
Community College
Fall Term, 1974

Department, Course, and Section Number	Course Title	Quarter Credit Hours	Enroll- ment	Total Student Cr. Hrs.	Student Station Periods	Instructional Setting
Physical Education PE 185-364	Advanced Archery	1	8	8	24	Range
-365	Beginning Archery	1	19	19	57	Range
-370	Flag Football	1	45	45	135	P. E. Field
-379	Soccer	1	30	30	90	P. E. Field
-380	Beginning Tennis	1	16	16	48	Tennis Courts
-381	Beginning Tennis	1	22	22	66	Tennis Courts
-382	Beginning Tennis	1	18	18	54	Tennis Courts
-384	Intermediate Tennis	1	12	12	36	Tennis Courts
-385	Advanced Tennis	1	10	10	30	Tennis Courts
-388	Ski Conditioning	1	34	34	340	Slopes
-389	Varsity Cross Country	1	15	15	150	P. E. Field
0.582-1367	Tennis I	0	18	0	54	Tennis Courts
Psychology 112-485	Individual in Community	2	1	2	2	Faculty Office (& Community)
-486	Individual in Community	2	2	4	4	Faculty Office (& Community)
-488	Individual in Community	2	3	6	6	Faculty Office (& Community)
Speech 188-507	Special Studies	3	1	3	3	Faculty Office (& Community)
Writing 227-182	Technical Report Writing	3	4	12	12	Faculty Office (& Community)
		<u>41</u>	<u>522</u>	<u>389</u>	<u>2061</u>	

Whereas this type of arrangement generally occurs on all campuses, it should be noted that 389 student credit hours were generated from the "non-scheduled" course load at Central Oregon Community College during Fall Term, 1974. This load is equal to 8.64 annual FTE students. In terms of student-station-periods occupied the impact appears much greater, as it indeed was. A total of 2,061 SSPO per week in non-scheduled classes materialized over the period studied. This level of activity may be compared to several teaching laboratories having a combined area of 7,000 square feet and used at the same level attained for all regular teaching labs as shown on Table 10-B.*

Use of Off-campus Facilities

A small portion of the instructional load during Fall Term, 1974, was conducted in classroom and laboratory settings located in off-campus buildings; i.e., in facilities not owned by Central Oregon Community College. These courses and corresponding enrollments, together with location, are listed on Table 9. In terms of space utilization, the 567 student-station-periods of occupancy shown amounts to 3.0 percent of the number generated in instructional rooms regularly available for on-campus classes. This level of activity is approximately equal

*3.36 square feet per SSPO x 2,061 SSPO = 6,925 square feet

Table 9

RECORD OF USE OF OFF-CAMPUS FACILITIES
FOR REGULARLY SCHEDULED COURSES

Central Oregon
Community College
Fall Term, 1974

Department and Course Number	Course Title	Off-campus Locations	Time of Meeting	Quarter Hours Credit	Enroll- ment	No. Room Periods per Week	No. Student- Station- Periods Occup./Week
Art 236-4	Jewelry	Bend High School	7-10 p.m. M-W	3	11	3	33
Business Technology 2.101-68	Basic Accounting	Redmond	7-9:40 p.m. M-W	3	18	3	54
Business Technology 2.120-80	Principles of Real Estate	Madras	7:20-10 p.m. W	3	9	3	27
Writing 111-178	English Composition	Warm Springs	4-6:30 p.m. Tu	3	5	3	15
Law Enforcement 111-255	Law Enforcement & Society	Prineville	9-11:50 a.m. Tu	3	9	3	27
Law Enforcement 211-259	Administration of Criminal Justice	Madras	7:20-10 p.m. Th	3	6	3	18
Medical Record Technology 5.511-323	Directed Practice	Hospital	TBA	13	9	--	360
Psychology 111-481	Process in Living	I & R Center (Bend)	3-4:40 p.m. M-W	3	11	3	33
				34	78	21	561

to the use of one general classroom with 31 stations for 30 room-periods per week at 60 percent occupancy when assigned. Based on 15 square feet per station, the resulting area per SSPO (.833) would then compare favorably with the figure actually attained at Central Oregon Community College during Fall Term, 1974, in the category of general classroom (see Table 10-A).

PART IV

FLOOR SPACE IN RELATION TO OCCUPANCY

As pointed out earlier, the number of times a classroom or laboratory is scheduled per week does not fully express the extent of its use. Class size must also be considered in arriving at a conclusion as to which rooms are efficiently assigned. An index which captures both factors in a single figure is referred to as "the area per student-station-period occupied," or floor-space index. As the level of usage increases (student traffic), the index decreases. In this sense, it works the same as a golf score to indicate desired direction.

The 16 general purpose classrooms and 19 teaching laboratories analyzed in this report are listed separately in Tables 10-A and 10-B, giving the area per student-station-period occupied for each.

General Purpose Classrooms

It can be seen on Table 10-A that Deschutes 1 bears the lowest index (.43 square feet per SSPO) and hence reflects the most intense level of usage of any classroom on campus. It was used 46 times (room-periods) per week with 58.43 percent of the stations occupied, on the

Table 10-A

FLOOR SPACE RELATED TO HOURS
OF STUDENT OCCUPANCYCentral Oregon
Community College
Fall Term, 1974

Building	Room Number	Area (sq.ft.)	No. Room Periods Used per Week	No. Student- Station- Periods Occupancy per Week	Percentage of Student Stations Occupied When Room is Assigned	Area per Student- Station-Period Occupied	R A N K
General Classrooms Seminar Rooms Teaching Auditoriums							
Deschutes	1	620	46	1449	58.43	.43	(1)
Deschutes	9	452	33	909	83.47	.50	(2)
Jefferson	5	430	32	820.5	62.53	.52	(3)
Pence	22	636	33.5	1045.5	65.02	.61	(4)
Ochoco	5	702	37	1118	47.21	.63	(5)
Ochoco	1	353	31	509	86.42	.69	(6)
Physical Education	2	553	27.5	725	87.88	.76	(7)
Ochoco	3	445	40	575	47.92	.77	(8)
Jefferson	7	537	36	640	59.26	.84	(9)
Deschutes	5	431	29	509	70.21	.85	(10)
Deschutes	7	431	29	505	69.66	.85	(11)
Pence	2	380	25.5	355.5	57.76	1.07	(12)
Library	4	720	26	645	65.28	1.12	(13)
Administration	28	1001	28	684	53.11	1.46	(14)
VoTech	206	1112	29	650	49.81	1.71	(15)
Physical Education	1	553	10	213	66.56	2.60	(16)
Total	16	9356	492.5	11,352.5	61.22	.824	

Table 10-B

FLOOR SPACE RELATED TO HOURS
OF STUDENT OCCUPANCYCentral Oregon
Community College
Fall Term, 1974

Building	Room Number	Area (sq.ft.)	No. Room Periods Used per Week	No. Student- Station- Periods Occupancy per Week	Percentage of Student Stations Occupied When Room is Assigned	R A N K	Area per Student- Station-Period Occupied	R A N K
Teaching Laboratories								
Vocational-Tech	204	966	33	675	81.82	(6)	1.43	(1)
Modoc	5	1611	39	943	100.75	(4)	1.71	(2)
Ochoco	7	1154	33	670	101.52	(3)	1.72	(3)
Jefferson	1	1074	33	592	69.00	(10)	1.81	(4)
Vocational-Tech	102	2239	37	868	106.63	(2)	2.58	(5)
Pence	6	251	16	84	58.33	(12)	2.99	(6)
Pence	26	1199	26	395	75.96	(8)	3.04	(7)
Deschutes	3	545	23.5	167	44.41	(15)	3.26	(8)
Pence	8	369	10	112	56.00	(13)	3.29	(9)
Vocational-Tech	205	992	43	292	37.73	(18)	3.40	(10)
Pence	28	2099	27.5	596.5	43.38	(16)	3.52	(11)
Jefferson	3	441	28	120	42.86	(17)	3.68	(12)
Vocational	201	2133	31	534	68.90	(11)	3.99	(13)
Pence	24	959	21	227	98.27	(5)	4.22	(14)
Vocational	7	1476	14	332	52.70	(14)	4.45	(15)
Modoc	3	1468	21	321	76.43	(7)	4.57	(16)
Vocational-Tech	14	1852	21	321	69.48	(9)	5.77	(17)
Vocational-Tech	15	4326	35	460	35.52	(19)	9.40	(18)
Vocational-Tech	6	1111	10	117	146.25	(1)	9.50	(19)
Total	19	26,265	502	7,826.5	67.15		3.36	

average, when the room was assigned--a high level of utilization indeed, even though 10 of the remaining 15 classrooms appear more efficient in matching class size to room capacity. Nevertheless, Deschutes 1 must be regarded as the most efficient overall in view of the floor-space index, which takes into account the area per station. It can be seen on Table 1 that Deschutes 1 has only 11.48 square feet per student station, whereas the average for all classrooms is 15.99, thus rendering it perhaps "over-stationed" and a bit more prone to showing a lower percentage of occupancy than other less equipped rooms.

Deschutes 9 and Jefferson 5 follow close behind Deschutes 1. They compare favorably on the floor-space index (.50 and .52 respectively) but differ somewhat in the way in which comparable levels of utilization were achieved. Whereas these two rooms experienced about the same number of class-period meetings per week, they varied widely with respect to student-station use. It would appear that Deschutes 9 was used with considerably greater efficiency. But, again, one must note the different room and student-station areas. As the floor-space index indicates, utilization efficiency is roughly equivalent, though a student might prefer to sit in the slightly larger, less crowded Deschutes 9.

In general, classrooms with a floor-space index of

.833* or less should be regarded as efficient. Higher indices identify areas which should be studied for possible increased scheduling as need arises or for improvements in room design. For example, Physical Education 1 can obviously be utilized more, but Vocational-Technical 206, which appears only slightly more efficient, presents a different kind of problem. Vocational-Technical 206 was scheduled 29 hours per week, approximately the average for all Central Oregon Community College classrooms. The average size class scheduled into the room was 22.4 students, again not seriously below the average of 23.1 for all classes held in similar type rooms. Its unfavorable floor-space index (1.71 square feet per student-station-period occupied) can be attributed to the fact that the room is too large for the classes assigned in it. The area is 1,112 square feet with 45 stations and an area per station of 24.7 square feet. A question might be asked, what size should the room be in order for its current level of use to appear efficient? The answer may be determined as follows:

Vocational-Technical Room 206

$$\begin{aligned}
 \text{Desired Area} &= \text{Floor-space index} \times \# \text{ student stations} \\
 &\quad \times \text{room-periods used per week} \times \% \text{ occupancy} \\
 &= (.833) (45) (29) (.4981) \\
 &= 542 \text{ square feet}
 \end{aligned}$$

*Based on standard classroom with 30 student stations and area of 15 square feet per station, used 30 room-periods per week at 60 percent occupancy during the hours 8 a.m. to 5 p.m.

Hence, an area of 542 square feet would accommodate with substantial efficiency the same instructional load as accommodated in Vocational-Technical 206 during Fall Term, 1974.

It should be noted that Room 206 has some of the characteristics of a teaching laboratory. One wall is lined with work benches; area is abundant; and, in fact, the room is referred to as the "Forestry Lab." For all practical purposes, however, it functions as a general classroom. Certainly, as scheduling permits, any discipline would find the space quite satisfactory for lecture-discussion sessions.

The above analysis of specific rooms should be regarded as illustrations of how to interpret Table 10-A, not as selected praise and censure of some rooms to the exclusion of others. Actually, each classroom reflects certain aspects of utilization which might be studied in light of future scheduling and space planning.

Teaching Laboratories

Comparable data for the 19 teaching laboratories are presented on Table 10-B. Immediately, attention is drawn to the variation in areas per student-station-period occupied. Little uniformity is seen, but little should be expected until one fully appreciates that each discipline requiring laboratory space is essentially unique and has its own set of use parameters. The very

nature of laboratory instruction demands a more limited assignment of these types of facilities than is true for general classrooms. For one thing, the entire lab must be supplied once a decision is made to offer a particular kind of instruction requiring labs, even though student demand may be low at the outset or indeed remain low in relation to other courses or instructional modes. A chemistry lab, for example, is used only for the study of chemistry, whereas a general classroom can be used by all disciplines, to some extent, and, therefore, holds greater opportunity for scheduling. It was pointed out earlier that the area per student station in teaching laboratories is much greater than in general classrooms,* so even if rooms and stations are occupied equally in both categories, the floor-space index will necessarily be different.

A more revealing approach to analysis might be to regroup the teaching laboratories shown on Table 10-B into two categories based on area-per-station requirements. This would reduce area-per-station variability and make the floor-space index somewhat more useful as a utilization indicator. The following grouping is merely suggestive and arbitrary:

*See Table 1 for individual room statistics. Central Oregon Community College's average area for classrooms was 15.99 square feet per station during Fall Term, 1974, and 61.37 square feet for teaching labs (283.8 percent greater).

Exhibit 4

<u>Business, Drafting, Language Arts, Music</u>			<u>Art, Science, Nursing, Technology</u>		
<u>Room</u>	<u>Area per Student Station</u>	<u>Area per Student- Station- Period Occupied</u>	<u>Room</u>	<u>Area per Student Station</u>	<u>Area per Student- Station- Period Occupied</u>
VT 204	38.64	1.43	Modoc 5	67.12	1.71
Jefferson 1	41.33	1.81	Ochoco 7	57.70	1.72
Pence 6	27.89	2.99	VT 102	101.77	2.58
Deschutes 3	34.05	3.26	Pence 26	59.95	3.04
Pence 8	18.45	3.29	VT 205	55.11	3.40
Pence 28	41.98	3.52	VT 201	85.32	3.99
Jefferson 3	44.10	3.68	Pence 24	87.18	4.22
			VT 7	32.80	4.45
			Modoc 3	73.40	4.57
			VT 14	84.18	5.77
			VT 15	116.32	9.40
			VT 6	138.88	9.50
Average	<u>36.83</u>	<u>2.45</u>		<u>75.44</u>	<u>3.74</u>

The groupings, of course, could be further refined, but the one above serves to illustrate the hazards of not taking into account area requirements per student station when reviewing teaching laboratory utilization. From the data, for instance, it appears that Jefferson 1 and Modoc 5 utilize their space about equally well in terms of student-station-periods occupied. In fact, a floor-space index of 1.71 in a life science area represents extremely high student-station occupancy* whereas a similar index of 1.81 in a business lab represents only average usage (equivalent to 29 room-periods per week at

*Equivalent to 49 room-periods per week at 80 percent occupancy, assuming that area per station (67.13 square feet) is appropriate and that student-station-periods occupied reflect only laboratory instruction.

80 percent occupancy). The explanation lies solely in area-per-station requirements. Only after a standard (area per station) has been adopted for each discipline requiring laboratories can evaluation of space use and projection of future needs be most effectively accomplished.

In order to proceed with the analysis, therefore, it is herein assumed that current areas per student station in teaching laboratories at Central Oregon Community College are basically adequate. This may or may not be true--and indeed some deficiencies were noted--but the assumption will serve to permit certain other aspects of laboratory utilization to be considered.

A look at Table 10-B (or Exhibit 2) suggests that Room 204 in the Vocational-Technical Building ranks highest in utilization, considering that the floor-space index (1.43) is lowest (most favorable) of any other teaching lab. Actually, the room is poorly utilized for the purpose intended (drafting lab). Approximately three-fifths (61.6 percent) of all instructional activity which took place in VT 204 during Fall Term, 1974, could just as well have taken place in a general purpose classroom. That is, lecture-discussion type instruction, not drafting, drawing, etc., accounted for 61.6 percent of the student-station-periods occupied. So the (design) efficiency drops from 1.43 to 3.73, which is equivalent

to only 13 room-periods per week at 80 percent occupancy. In effect, VT 204 serves heavily as a lecture room. Its actual floor-space index might better be compared to those on Table 10-A (general purpose classrooms).

VT 102, on the other hand, reflects excellent usage. Room-periods of use are high (37 per week) and student-station occupancy above 100 percent (meaning some doubling up). Also, the room is used entirely for its intended purpose (office machine repair), assuming that the 10 lecture hours per week scheduled during Fall Term, 1974, cannot be effectively conducted outside the laboratory environment.

Earlier, Modoc 5 (Biology) was listed as an example of high utilization. Certainly it appears to be on Exhibit 2. It should be noted, however, that it served as a lecture room for 34 percent of its instructional load. If the corresponding student-station-periods of occupancy are deducted, then the floor-space index for Modoc 5 drops from 1.71 to 2.59, which compares with that attained by VT 102. This still remains equivalent to 32 room periods per week at 80 percent occupancy, a high rate even without considering the lecture activity. Consequently, Modoc 5 ranks among the most intensively utilized teaching laboratories on the Central Oregon Community College campus.

Ochoco 7 (Geology and Physics laboratory) serves to accommodate large lecture sessions more so than Modoc 5.

Lectures accounted for 54.3 percent of the student-station-periods occupied during Fall Term, 1974, reducing the floor-space index from 1.72 to 3.77. The level of laboratory instructional activity actually attained in Ochoco 7 is equivalent to the use of this room for 15 periods per week at 80 percent occupancy, somewhat below average for such a facility but unavoidable in view of a shortage of general classroom space during the scheduled hours.

One room, VT 6, functions more as a service area than a teaching laboratory. The automotive and welding programs, which are housed adjacent to it, utilize the various tools on a non-scheduled basis though none of this usage is reflected in this report.

Another room which bears some comment is VT 7, a teaching laboratory for Automotive Technology. Its scheduled use centers primarily on lecture-type instruction. This room serves also as a kind of laboratory service area and, less significantly, as a study hall. Noise from adjacent areas, as well as acoustical qualities, render VT 7 perhaps unsuitable for general classroom assignment to other departments though it is a large room with 45 tablet-arm chairs and went largely unused during prime morning and afternoon hours of Fall Term, 1974, for regularly scheduled classes.

Pence 28, the band-rehearsal room, receives additional usage by virtue of its role as the "theater-rehearsal

and performance auditorium." In fact, considerable use is made of this room for these purposes, including unspecified use for choreographic and music rehearsal. Hours blocked off to accommodate these activities during Fall Term, 1974, included 3:30 to 5:30 Monday through Friday and 6:30 to 10:30 (or later) Tuesday through Friday. Upwards to 65 people were involved at various times, including two consecutive weekends for set construction. It is estimated that this "non-scheduled" use is greater than scheduled use for regular credit classes as reflected in this report.

PART V

SUMMARY AND CONCLUSIONS

As noted in the Foreword, the aim of this study has been to shed light on patterns of instructional space utilization at Central Oregon Community College during the Fall Term of 1974 and to reach certain conclusions concerning how well the available space "fits" the instructional programs and their corresponding enrollments. Focus has been drawn entirely upon the amount of space as it relates to accommodating student loads. The joint issues of space quality and, particularly, space suitability for achieving specific instructional goals constitute important considerations in themselves and should be addressed separately as attention and resources can be brought to bear. Certainly the reader of this report should not assume that an instructional facility is adequate merely because it is well utilized. Neither should one consider it unsatisfactory because it is not.

A number of comments have been made within the text about the use of teaching laboratories for lectures. Normally, lectures should be scheduled in general purpose classrooms, thus freeing laboratories for additional laboratory-oriented classes. If no such demands exist,

an instructor might find an unassigned lab more convenient than a general purpose classroom perhaps located in another building. Nothing is wrong with this so long as such additional (lecture) usage isn't later applied in support of a request for more laboratory space.

A similar restraint should not be placed on instructors whose lectures depend on the laboratory setting. In such instances, laboratory and lecture periods must be given equal weight even though some sections may be merged for the lecture. Displacement of lectures held in teaching laboratories, however, merely shifts the burden to general purpose classrooms. It does not eliminate the need for space, only the type of space. But inasmuch as laboratories cost a great deal more per square foot to build and equip than general classrooms, the trade-off has merit. For example, the following calculation may be applied to arrive at the amount of space in general classrooms to accommodate lecture-type instruction given in selected teaching laboratories during the Fall Term, 1974:

Exhibit 5

<u>Room</u>	<u>Student-Station- Periods Occupied</u>		<u>Square Feet Required in General Classroom Space for Lecture Only*</u>
	<u>Lab</u>	<u>Lecture</u>	
	<u>Classes</u>	<u>Classes</u>	
	(1)	(2)	(3)
Modoc 3	312	9	8
Modoc 5	622	321	267
Ochoco 7	306	364	303
VT 204	259	416	347
	<u>1499</u>	<u>1110</u>	<u>925</u>

*Figures in column (3) were obtained by multiplying the figures in column (2) by a floor-space index of .833.

Exhibit 5-A

	<u>Area in Square Feet</u>	<u>No. Student Stations</u>	<u>Area per Station</u>	<u>Assumed Room-Periods of Use per Week</u>	<u>Percentage of Student- Station-Periods of Occupancy When Room is Assigned</u>
Room A	450	30	15	30	60
Room B	<u>465</u>	<u>31</u>	<u>15</u>	<u>30</u>	<u>60</u>
	915	61	15	60	60

$$\begin{array}{c} \text{Area per} \\ \text{Student-} \\ \text{Station-} \\ \text{Period. Occupied} \\ \text{(SSPO)} \end{array} = \frac{\begin{array}{c} \text{No.} \\ \text{Student} \\ \text{Stations} \\ \text{Class} \\ \text{Size} \end{array}}{\begin{array}{c} \text{No.} \\ \text{Room} \\ \text{Periods} \end{array}} \times \frac{\begin{array}{c} \text{Area} \\ \text{per} \\ \text{Station} \\ \text{Percentage} \\ \text{Occupancy} \end{array}}{\begin{array}{c} \text{Room} \\ \text{Area} \\ \text{SSPO} \end{array}}$$

Room A

$$\begin{array}{c} \text{Area} \\ \text{per SSPO} \end{array} = \frac{30}{30} \times \frac{15}{30} \times \frac{60}{60} = \frac{450}{540} = .833$$

Room B

$$\begin{array}{c} \text{Area} \\ \text{per SSPO} \end{array} = \frac{31}{31} \times \frac{15}{30} \times \frac{60}{60} = \frac{465}{558} = .833$$

An area of 915 square feet rather than 925, as derived in Exhibit 5, was used to simplify the illustration.

The above calculation deals with only four teaching laboratories out of nineteen currently in inventory. These particular four were perhaps more heavily used during Fall Term, 1974, for lecture-type instruction than any of the others. In any case, corresponding student-station-periods of occupancy in lecture-type instruction, as may be seen in Exhibit 5, amount to 14.2 percent of

the student-station-periods of occupancy reported for nineteen teaching laboratories. It seems reasonable, therefore, to estimate that 20 percent of the student-station-periods of occupancy reported for all teaching laboratories in this report represent lecture-type activity for which general purpose classroom space was not available at the hour needed or not convenient because of distance and consequent problems of transporting necessary teaching aids, and so on.

Future Space Requirements

As a tentative approach to projecting future physical facilities requirements at Central Oregon Community College, certain assumptions must be made. These assumptions are listed below and form the essential components around which policy decisions can be formulated by institutional management and governing authorities.

1. Enrollment will increase at an average annual rate of 8 percent through 1980.
2. An FTE student will occupy 10 student stations per week in general classroom space and 5 in teaching laboratory space (the current level).
3. General purpose classrooms will be utilized at the rate of 30 room periods per week, 8 a.m. to 5 p.m., with student stations 60 percent filled when rooms are assigned.

4. Teaching laboratories will be utilized at the rate of 24 room periods per week, 8 a.m. to 5 p.m., with student stations 80 percent filled when rooms are assigned.
5. Space required for day use will be adequate for evening use.
6. Average floor area per student station will be 15 square feet for general purpose classrooms and 65 square feet for teaching laboratories.
7. The ratio of support space to instructional space will remain at approximately 2:1 (College-wide).
8. Net assignable areas will remain at approximately 70 percent of gross areas (College-wide).
9. Instructional space as required for Fall Term will be adequate for each of the other terms.

By applying the above assumptions, one can arrive at the space requirements as set forth in Exhibit 6.

Thus, a total of 7,604 square feet in general classroom space and 8,144 in teaching laboratory space will be required at Central Oregon Community College by the Fall Term of 1980, based on the assumptions as listed. No net increase in teaching laboratory space, however, will be needed until Fall, 1977, whereas additional areas in general purpose classrooms are currently indicated. It should be pointed out at this time that certain teaching laboratories may not currently be adequate for the programs they are housing and that specific modifications,

Exhibit 6

	FTE Enroll- ment	Student-Station- Periods Occupied		No. Square Feet Floor Space Required		Additional Square Feet Needed	
		Teaching Laboratories	General Classrooms	Teaching Laboratories	General Classrooms	Teaching Laboratories	General Classrooms
(Actual) 1974	1,280	6,262*	12,919*	21,228	10,762		1,406
(Est.) 1975	1,382	6,910	13,820	23,425	11,512		800
(Est.) 1976	1,493	7,465	14,930	25,306	12,437		925
(Est.) 1977	1,612	8,060	16,120	27,323	13,428	1,058	991
(Est.) 1978	1,741	8,705	17,410	29,510	14,503	2,187	1,075
(Est.) 1979	1,880	9,400	18,800	31,866	15,660	2,356	1,157
(Est.) 1980	2,030	10,150	20,300	34,409	16,910	2,543	1,250
						8,144	7,604

*Adjusted by 20 percent as explained on page 64.

alterations, room reclassifications, etc., might need to be undertaken. For example, Geology appears to need additional teaching laboratory service area; Art and Theater currently utilize laboratory space which is not designed for these programs.

Of course, the 15,748 square feet of instructional space needed by 1980 will necessarily be accompanied by additional support space, such as faculty and staff offices, storage, administrative areas, etc. A ratio of 2:1 yields 47,244 net assignable square feet of instructional and support space. This area, in turn, may be translated into gross area by following the assumption of 70 percent net-to-gross ratio, giving 67,491 gross square feet. At a cost of \$40 per (gross) square foot, such a building program would require \$2,699,640 for the bare space alone. Site improvement and equipment constitute additional costs.

A final point should be made concerning the list of assumptions, or standards, used to arrive at area requirements. Utilization of instructional rooms will not coincide perfectly with the standards adopted. Use curves follow a step, or saw-tooth, rather than linear pattern. If, for instance, the number of rooms in inventory remains constant, the number of room-periods of use will increase along with enrollment until such time as additional rooms are provided. This action, of

course, will reduce the average number of room periods and start the cycle all over again. The goal, therefore, should be to adopt a reasonable and efficient utilization standard and then use it as a basis upon which to predicate future building programs.

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